cussion, in a state of ignorance as to what "scientific management" is.

A point which is now more in need of honest investigation than further discussion is whether scientific management can be applied to a business like that of the railway, which extends over a great stretch of country and in which some of the units are constantly moving from place to place. On the face of it there seems to be no good reason why "preparedness; separation of planning from performance; analytical study of every operation; and current records of the efficiency of men, equipment and materials" (*Brandeis*, p. 62), should not apply to such a business; but railroad men frequently assume that these principles can only apply to maintenance of equipment (*Ry. and Eng. Rev.*, Nov. 26, 1910).

This assumption has led to some very unfair and futile misstatements of the meaning of Mr. Emerson's calculation that a million dollars a day or $300,000,000 a year can be saved by American railways out of their operating expenses. For example, *The Railway and Engineering Review* (Nov. 26, 1910) in an editorial endorsed by many railway men, claims "that the total cost of maintenance of equipment, as shown by the reports of the Interstate Commerce Commission, is under $400,000,000 a year. Out of this, Mr. Brandeis would have the railways save $365,000,000. In other words, his nostrum would save the entire cost of shop labor and most of that for materials." It would be interesting to know whether this editorial was written after Mr. Emerson gave the testimony which is quoted by Mr. Brandeis on pages 83-88 inclusive, for in that testimony Mr. Emerson, with great care, explained four methods by which he arrived at the figure quoted. The economy of one million dollars per day was calculated by him on the basis of a total expenditure by railways for labor and materials of $1,667,000,000; in other words, a possible saving of 18-22 per cent was indicated instead of 75-90 per cent.

EDWARD D. JONES.

Ann Arbor, Michigan.

Accounting and Auditing. By WILLIAM MORSE COLE. (Chicago: Cree Publishing Company. 1911. Pp. 479.)

Professor Cole has a happy faculty of crystalizing and rendering clear whatever is vague on the subject of elementary accounts and making the reader sure where before he was doubtful. There

is originality in his distinction between accounting and bookkeeping. Bookkeeping is defined as the art of making record of known facts in such shape that the record can be interpreted and mathematical conclusions drawn, assuming that the fact is known before the records are constructed; while accounting is the art of learning the facts which bookkeeping is supposed to record. There is directness and simplicity in his statement of the three fundamental principles, so often ignored or smothered in high-sounding terminology: (1) the distinction between debit and credit, involving a determination of exact responsibility in connection with every entry involved in the transaction; (2) the use that shall be made of an account in determining profit and loss and the values of property at various periods; and (3) the saving of labor and minimizing of work in arranging the books for the convenience of the business, providing for special purposes.

Debit and credit are relative terms, the meaning of which cannot be known until one knows on what set of books the entries appear or in what relation the terms are used with respect to the business under consideration. Debit is explained as meaning that the account is *responsible* to the business either to repay the sum debited or to explain the sacrifice. When a transaction has occurred in which some person, department, or force is responsible for the departure from the business of value (whether for the receipt and care of property or for the venture of something), the account representing that person, department, or force should be charged with appropriate accountability, that is with the necessity of an explanation. This question of responsibility, which bothers a great many people including instructors in accounting, is explained with especial clearness. Responsibility or accountability may arise from any one of many things. It may be a duty to be performed by the business for the benefit of a person or item named on the books, in which case it is a credit. It may be a duty to be performed for the benefit of the business either by an outside force or by some department of the business itself, in which case it is a debit. The whole discussion of debit and credit is made luminous with description and the technicalities ordinarily found are ignored. I have tried the chapter on a number of students in elementary grades in secondary schools to determine its effect upon the mind, and the language has cleared up all doubts.

In chapter III in connection with the method of entry, Professor Cole gives a very satisfactory explanation of primitive diary

methods of showing facts, and skilfully shows that it would be possible to keep books in the diary form as a narrative. But the first necessity that would appear would be the need of some method to separate the plus from the minus, the positive from the negative, the active from the passive, the right from the left, the debit from the credit, and so a plan would evolve to formalize the diary, putting the language into certain prescribed form so worded that the narrative facts stated would be pointed toward a ledger or summary account. The statements of items would be formalized as though around arrows pointing in one direction to accounts to be debited, and in another to accounts to be credited. Together with the need of formalizing would arise the need of arranging the figures in logical order, segregating debits and credits, that nothing might be omitted or neglected, and so out of the diary would grow the work called journalization.

By gradual stages Professor Cole develops the treatment of various operations in bookkeeping and comes to the strong part of his work, drawing conclusions from the books. In the treatment of corporation accounts, he makes plain the differences between subscriptions and stock subscribed, between stock subscribed and capital stock, the correct accounting theory and the appropriate entries for premium and discount on sale of stock, and the treatment of accounts in connection with shares donated by the corporators to the corporation. In connection with the interpretation of balance sheets in this as in his previous writings the author does his best work. He makes you feel that it is not sufficient to look *at* a financial statement. It is not the stage where the actors are taking their several parts, but rather the opera glasses through which you look at the stage. It is of the utmost importance to translate the figures into facts, to take the financial statement as an enlarging glass or as a tool, a means, a channel, and sometimes even a club to get back to fundamental facts which are reflected perhaps more or less imperfectly in the statement itself. The chapter on auditing is short but none the less clear, its main purpose being to detect fraud or error as a part of the interpretation of accounts.

I believe it is impossible for anyone to read Professor Cole's book with concentration without equipping himself with new powers. It is impossible to read casually and indifferently. The book takes hold of one in a fresh, clear way, and impresses one with a desire to know more of the science and to work out for oneself in

black and white, every situation which is so interestingly suggested. The reader is requested and recommended to invent for himself situations involving the principles expounded, a recommendation which is rendered very easy to follow by the illuminating character of the expositions, such for instance as the distinction between capital and revenue, between one class of expenditure and another, between stable values and depreciating values, between values involving the capital accounts only and values involving interest and discount. Students of this book are able to visualize the situations, to think about facts back of every transaction.

STEPHEN W. GILMAN.

University of Wisconsin.

NEW BOOKS.

BENTLEY, H. C. *The science of accounts; a presentation of the underlying principles of modern accounting. Designed as a work of reference for accountants, and as a text-book for advanced students of accountancy.* (New York: The Ronald Press Co. 1911. Pp. 393. $3.00.)
To be reviewed.

BYLLESBY, H. M. *Securities of water power companies as investments.* (Philadelphia: The University of Pennsylvania. 1911. Pp. 59.)

EVANS, H. A. *Cost keeping and scientific management.* (New York: McGraw-Hill Book Co. 1911. Pp. ix, 252, illustrations.)

FARRINGTON, F. *Store management—complete.* (Chicago: Byxbee Publishing Co. 1911. Pp. 252, plates. $1.00.)

GOING. C. B. *Principles of industrial engineering.* (New York: McGraw-Hill Book Co. Pp. x, 174. $2.00.)
To be reviewed.

HIRST, F. W. *The stock exchange; a short study of investment and speculation.* Home University Library. (New York: Henry Holt & Co. 1911. Pp. vii, 256.)
To be reviewed.

LASCAZES, L. *Des garanties du prix de la vente d'un fonds de commerce (Loi du 17 mars 1909.)* (Toulouse: E. Privat. 1911. Pp. 223. 5 fr.)

LIPPER, M. W. *Investments.* With questions and problems by ARTHUR LOEWENHEIM. (New York: Universal Business Institute. 1911. Two volumes.)

NEUBURGER, A. *Die Herabsetzung des Grundkapitals bei Aktiengesellschaften.* (Berlin: Puttkammer & Mühlbrecht. 1911. Pp. xii, 312. 6 m.)
To be reviewed.